The ExoMars Science Data Archive: Status and Plans

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The ExoMars program is a co-operation between ESA and Roscosmos comprising two missions: the first, launched on 14 March 2016, included the Trace Gas Orbiter and Schiaparelli lander; the second, due for launch in 2020, will be a Rover and Surface Platform (RSP).

The archiving and management of the science data to be returned from ExoMars will require a significant development effort for the new Planetary Science Archive (PSA). These are the first data in the PSA to be formatted according to the new PDS4 Standards, and there are also significant differences in the way in which a scientist will want to query, retrieve, and use data from a suite of rover instruments as opposed to remote sensing instrumentation from an orbiter. NASA has a strong user community interaction for their rovers, and a similar approach to their 'Analysts Notebook' will be needed for the future PSA.

In addition to the archiving interface itself, there are differences with the overall archiving process being followed for ExoMars compared to previous ESA planetary missions. The first level of data processing for the 2016 mission, from telemetry to raw, is completed by ESA at ESAC in Madrid, where the archive itself resides. Data continuously flow direct to the PSA, where after the given proprietary period, they will be released to the community via the user interfaces. For the rover mission, the data pipelines are being developed by European industry, in close collaboration with ESA PSA experts and with the instrument teams. The first level of data processing will be carried out for all instruments at ALTEC in Turin where the pipelines are developed, and from where the rover operations will also be run.

This presentation will focus on the challenges involved in archiving the data from the ExoMars Program, and will outline the plans and current status of the system being developed to respond to the needs of the missions.